UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

SUBJECT:	CLEAN AIR ACT INSPECTION REPORT REG Madison LLC, Deforest, Wisconsin
FROM:	Dakota Prentice, Environmental Engineer AECAB (IL/IN)
THRU:	Nathan Frank, Section Supervisor AECAB (IL/IN)
TO:	File

BASIC INFORMATION

Facility Name: REG Madison LLC

Facility Location: 533 N. Stevenson Street, Deforest, Wisconsin

Date of Inspection: November 8, 2022

EPA Inspector(s):
1. Dakota Prentice, Environmental Engineer
2. Victoria Nelson, Environmental Engineer

Other Attendees:
1. Doug Judge, REG Madison – Director of Environmental Compliance Chevron/REG
2. Tim Mann, REG Madison – General Manager
3. Ann McKeon, REG Madison – Coordinator, EHS

Contact Email Address: Ann McKeon: ann.mckeon@chevron.com

Purpose of Inspection: to determine compliance with the facility's operating permit issued by the Wisconsin Department of Natural Resources

Facility Type: Biodiesel Production Facility

Regulations Central to Inspection: Various portions of the facility are subject to Standards of Performance for Equipment Leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemicals Manufacturing Industry (SOCMI) for which Construction Commenced After

January 5, 1981, and on or Before November 7, 2006 (NSPS VV) and Standards of Performance for VOC Emissions from SOCMI Distillation Operations (NSPS NNN)

Arrival Time: 9:40AM
Departure Time: 11:50AM

Inspection Type:
☒ Unannounced Inspection
☐ Announced Inspection

OPENING CONFERENCE

☒ Presented Credentials
☒ Stated authority and purpose of inspection
☐ Provided Small Business Resource Information Sheet
☒ Small Business Resource Information Sheet not provided. Reason: not a small business
☒ Provided CBI warning to facility

The following information was obtained verbally from REG Madison representatives unless otherwise noted.

Company Ownership: The facility was acquired by Chevron in June 2022

Process Description:
Biodiesel production begins with the delivery of process feedstocks consisting of distillers corn oil, fatty acid distilates, and used cooking oil. The feedstocks are filtered, heated, and sent to an esterification process. Esterification is a continuous process where heat and glycerin are used to break the feedstock fats down. The esterification reactors are referred to as the "200 Series". The ester material leaving the 200 Series reactors are sent to the "300 Series" reactors. At the 300 Series reactors, the esters are reacted with methanol and potassium methylate to produce fatty acid methyl esters or biodiesel. The biodiesel goes through various separation processes to separate/remove excess methanol, water, and glycerin. Methanol and glycerin are distilled and further refined for reuse or sale. The biodiesel production process also produces an oleo-lipid by-product material that does not meet biodiesel specifications but is used as a fuel for boilers and ships. Finished biodiesel is sent to storage tanks prior to shipment offsite.

Staff Interview: Emissions from the 200 series and 300 series reactors vent to a common header line and are controlled by a thermal oxidizer (TO). Storage tank emissions are also routed to the TO for control. The facility has a wet scrubber used only when the TO is down. It is reportedly used only a couple times per year. Process wastewater is held in a tank and sent offsite for processing. Distillation units at the facility are subject to NSPS NNN. Leak detection and repair (LDAR) surveys are performed by facility personnel.

TOUR INFORMATION

EPA Tour of the Facility: Yes

Data Collected and Observations:
EPA walked the production process, observing the 200 series and 300 series reactors, as well as distillation operations. In the control room, the TO temperature was 1217^{O}F with a compliance setpoint of 1200^{O}F. EPA also observed a deaerator, which was added to remove oxygen from feedstocks to prevent heat exchanger fouling.

Photos and/or Videos: were taken during the inspection.
See Appendix A.

Field Measurements: were taken during this inspection.
Portable flame ionization detector (FID) measurements are included in Appendix B.

CLOSING CONFERENCE

☒ Provided U.S. EPA point of contact to the facility

Requested documents:

- Performance test reports for the TO and wet scrubber
- TRE calculations used for NSPS NNN compliance
- Most recent wastewater test report for volatile organic compounds
- Last two semi-annual compliance reports including NSPS NNN compliance documents

Concerns: EPA identified those locations at the facility with FID readings above background.

DIGITAL SIGNATURES

Report Author: DAKOTA PRENTICE Digitally signed by DAKOTA PRENTICE Date: 2022.11.15 13:49:17 -06'00'

Section Supervisor: Frank, Nathan Digitally signed by Frank, Nathan Date: 2022.11.22 11:40:24 -06'00'

APPENDICES AND ATTACHMENTS

Appendix A: Digital Image Log (Note: all photos claimed as confidential business information)
Appendix B: FID Field Data

Facility Name: REG Madison LLC
Facility Location: 533 N Stevenson Street, Deforest, Wisconsin
Date of Inspection: November 8, 2022

APPENDIX A: DIGITAL IMAGE LOG

1. **Inspector Name:** D. Prentice	2. **Archival Record Location: EPA Region 5 Electronic Record Center**

Image Number	File Name	Date and Time (incl. Time zone and DST)	Latitude and Longitude	Description of Image
1	IMG_0275.JPG	2022:11:08 11:02:57	Not Available	Reactor R-202
2	IMG_0276.JPG	2022:11:08 11:08:33	Not Available	Reactor R-301

Note: Photos claimed as confidential business information.

Facility Name: REG Madison LLC
Facility Location: 533 N Stevenson Street, Deforest, Wisconsin
Date of Inspection: November 8, 2022

APPENDIX B: FIELD MEASUREMENT DATA – FID READINGS

Inspector Name: V. Nelson

Location	Measurement
Process Sump	13 ppm
Trench Drain to Process Sump	14 ppm
Distillation Area Sump	12 ppm
T-908B	2,000 ppm

Calibration and Instrument Information
EPA used one ThermoFisher Toxic Vapor Analyzer 2020 (TVA2020). The EPA TVA2020 response times are in the 4 to 5 second range. Victoria Nelson used TVA2020 ID: B37055 for the duration of the inspection. Instrument calibration was conducted at 10:40 AM Central Time on November 8, 2022:

Calibration Gas Concentration (ppm)	B37055 Reading (ppm)
500	501
2,000	1,994
10,000	9,890

Calibration Gas Information

Manufacturer	Composition	Lot #	Expiration
Air Systems International	Zero air	304-402520136-1	8/22/24
GASCO	Methane, 500 ppm	304-402518883-1	8/15/26
Calgaz	Methane, 2,000 ppm	1434290	6/1/26
Calgaz	Methane, 1%	1440891	6/1/26